

- 1 THE TERMINATION RESISTOR MUST BE PRESENT IN EVERY PANEL BUT IT MUST BE CONNECTED TO XCOM1 BY SHORTING XCOM1:1 & XCOM1:2 , XCOM1:3 & XCOM1:4
- 2 VT IS THE VOLTAGE TRANSFORMER
- 3 CTs & VTs ARE TO BE CONNECTED TO THE METERS VIA FT-SWITCH
- 4 H1 IS ANTI-CONDENSATION HEATER TO BE CONNECTED TO 127/220VAC
- 5 USE GROUP MARKER FOR GROUP MARKING
- 6 USE FERRULING FOR CABLE MARKING
- 7 FOR EXTERNAL WIRING OF THE PANELS REFER CABLE SCHEDULING OF THE SUBSTATIONS & FOR TESTING FOLLOW THE TEST DOCUMENTS
- 8 NEUTRAL SHOULD NOT BE CONNECTED TO TH1 THERMOSTAT
- 9 CONNECT RESISTOR R4 BETWEEN TERMINAL 5 & 6 OF XCOM1 & GROUND TERMINAL 6 OF XCOM1 USING YELLOW GREEN WIRE
- 10 ALL THE TERMINAL BLOCKS HAVING EXTERNAL WIRING CONNECTIONS LIKE VT.CT.AC/DC TERMINAL BLOCKS SHOULD HAVE WIRE CONNECTION ON THE SIDE OF TERMINAL BLOCK NOT CLOSE TO PANEL ACCESS DOOR
- 11 ALL THE FERRULES SHOULD BE OUTSIDE RACEWAY, NEAR CONNECTOR & EASILY READABLE WIHTOUT TURNING OR MOVING WIRES.
- 12 FOR CONNECTIONS/FERRULING PLEASE FOLLOW THE TABLE ON SHEET 17
- 13 FOR CONNECTIONS/FERRULING PLEASE FOLLOW THE TABLE ON SHEET 17
- 14 FOR CONNECTIONS/FERRULING PLEASE FOLLOW THE TABLE ON SHEET 17
- 15 FOR CONNECTIONS/FERRULING PLEASE FOLLOW THE TABLE ON SHEET 17
- 16 FOR CONNECTIONS/FERRULING PLEASE FOLLOW THE TABLE ON SHEET 17
- 17 WHEN CONNECTING ELECTRICAL WIRES FOR THE RELAYS MAKE SURE TO CONNECT ON THE SIDE MARKED 'A' FOR ALL PIN NUMBERS
18. FQ1 AND FQ2 ARE THE FIELD CONTACTS ASSOCIATED WITH THE BUS COUPLER DISCONNECTORS FOR SWITCHING.
- 19 XO ARE LOCATED INSIDE THE METERING PANEL

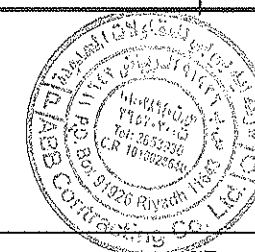
JOB ORDER NO.	INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
11131113/00	P	C469	CD-320881	01 of 17	01

SEC CAD-A 12004/
[DAG] VECTOR

1. EXISTING PANEL NOS AND EXISTING DRAWING
NOS TO BE VERIFIED AT SITE

LEGEND

REFERENCE DRAWINGS

[illegible]

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1	13/07	MRA	DETAIL DESIGN		MRA	AS			
0	12/01	MRA	BASE DESIGN		MRA	AS			
REV. NO.	DATE	BY	DESCRIPTION		CHKD.	CERT.	AP		

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SCHEMATIC DIAGRAM, AMR, DCU PANEL
WITH 1 POM WITH RELAY + 1 BM W/O RELAY

S/S 8162

RIYADH	SAUDI ARABIA
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INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV.
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NOTES

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LEGEND

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DRAWING CONTROL SHEET	CD-293969

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0	12/01	MRA	BASE DESIGN	MRA	AS
REV. NO.	DATE	BY	DESCRIPTION	CHKD.	CERT.

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DOC NO. E-123456 REV. NO. 00

SCHEMATIC DIAGRAM, AMR, DCU PANEL
WITH 1 POM WITH RELAY + 1 RM W/O RELAY
8/S 8162

RIYADH SAUDI ARABIA

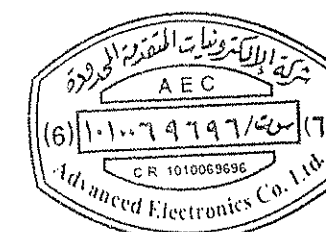
JOB ORDER NO.	INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
11131113/00	P	C469	CD-320881	02 OF 17	01

SEC CAD-A 12004/031
[240] [REVISION]

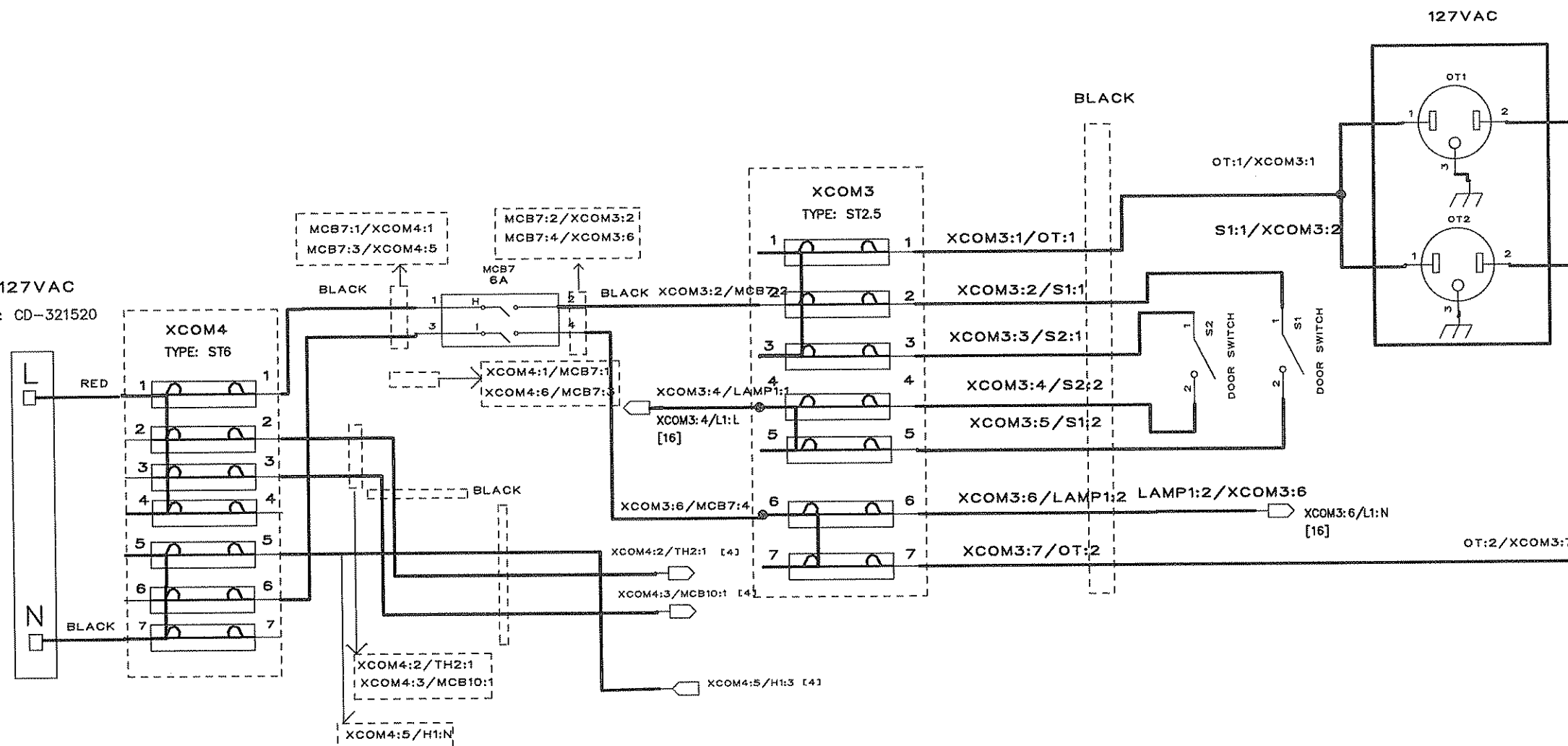
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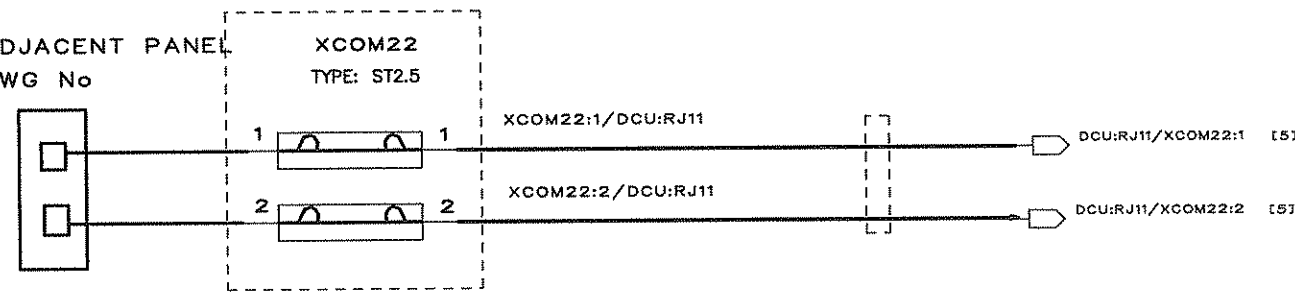
- 20 SPECIAL CABLES TO BE USED WITH DC/DC CONVERTER
- 21 DIAL UP IS THE DEFAULT COMMUNICATION BUT IF GSM IS USED THEN A GSM MODEM & SPECIFIC ANTENNA HAS TO BE PLACED INSTEAD OF DIAL UP MODEM & CONNECTED TO COM2 OF THE DCU
- 22 GSM MODEM IS TO BE POWERED USING 6 PIN RJ11 CABLE WITH OPEN ENDS. SHORT WIRES 1 AND 4 OF THE CABLE & CONNECT TO TERMINAL BLOCK 4 OF XCOM20 & WIRE 6 OF CABLE TO TERMINAL BLOCK 8 OF XCOM20. THE OTHER END OF CABLE SHOULD BE CONNECTED TO RJ11 PORT OF THE GSM MODEM
- 23 TERMINAL 10 IN XC1 TO XC4 TO BE CLOSED IF CT CIRCUIT IS NOT EARTHED ANY OTHER PLACE



127VAC
DWG: CD-321520

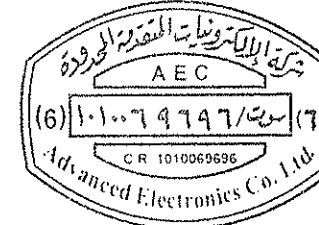


ADJACENT PANEL
DWG No



FROM THE SUBSTATION PSTN NETWORK

SPECIAL CUTOIMIZED TELEPHONE CABLE



NOTES

1. EXISTING PANEL NOS AND EXISTING DRAWING
NOS TO BE VERIFIED AT SITE

LEGEND

S1, S2 - DOOR SWITCH FOR LAMP
OT1, OT2 - AC POWER OUTLET
ACDB - AC DISTRIBUTION BOARD

REFERENCE DRAWINGS

DRAWING TITLE	DRAWING NO.
DRAWING CONTROL SHEET	CD-293969



REV. NO.	DATE	BY	DESCRIPTION	CHKD.	CERT.	APPD.
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DOC NO. E-123456 REV. NO. 00

127VAC AND TEL

CONNECTIONS INSIDE PANEL

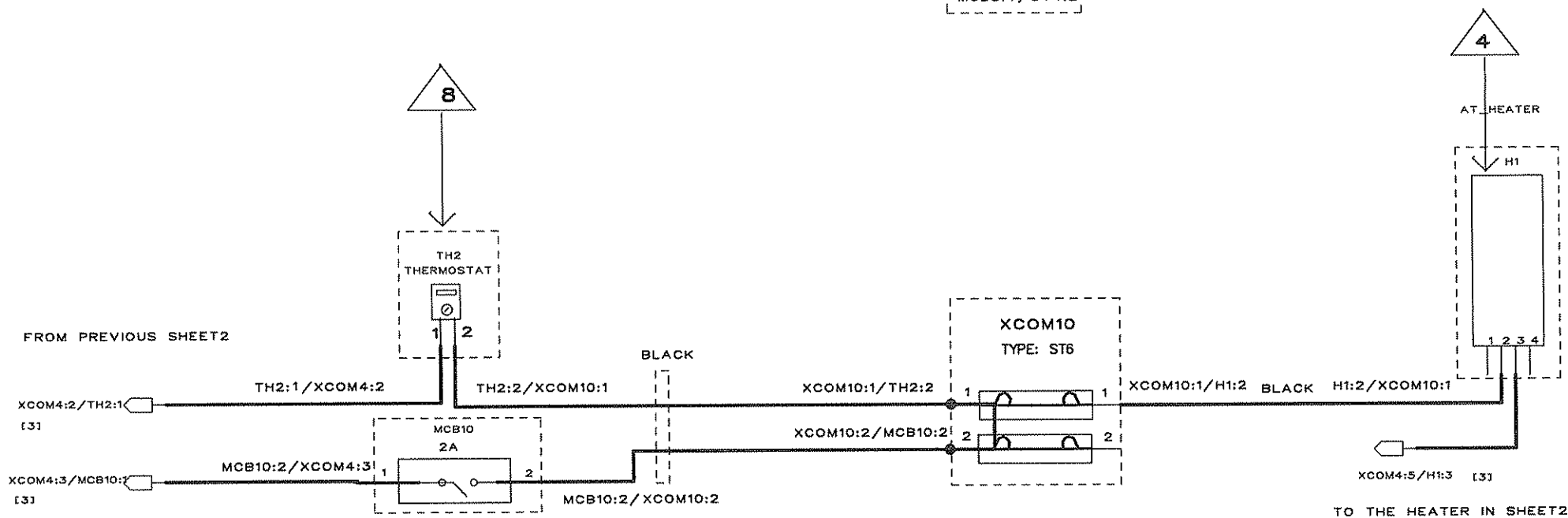
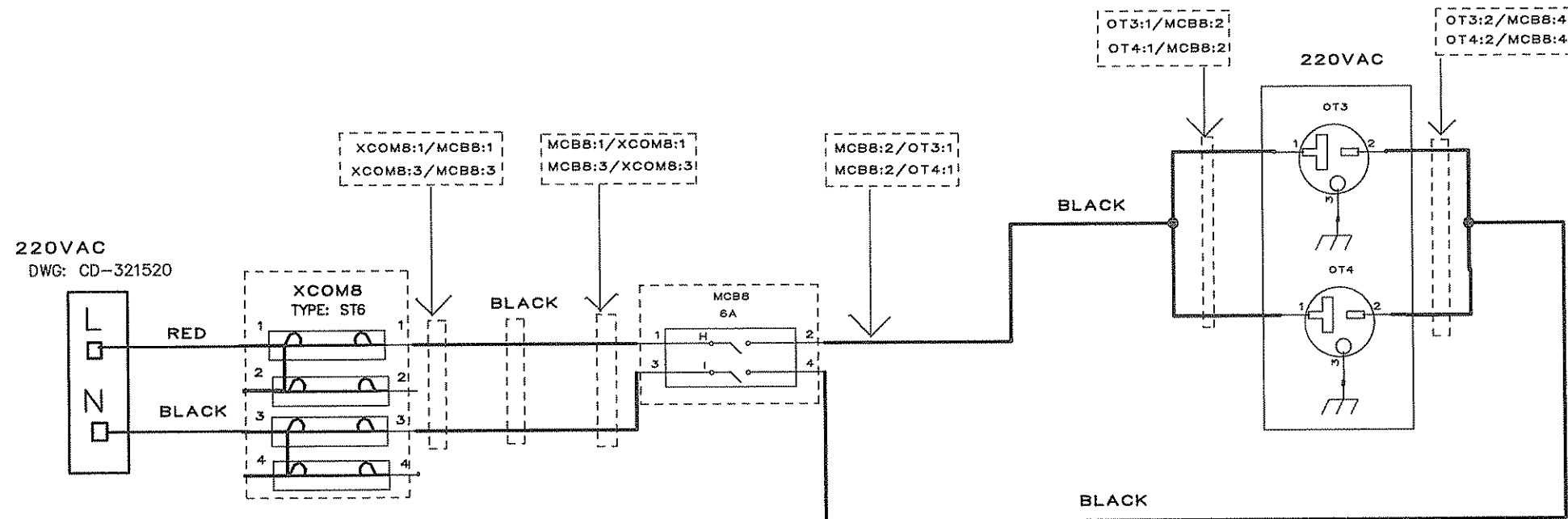
S/S 8162

RIYADH SAUDI ARABIA

JOB ORDER NO.	INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
1113113/00	P	C469	CD-320881	03 OF 17	01

SED CAD-A 12004/031
[DMS] [VECTOR]

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NOTES

1. EXISTING PANEL NOS AND EXISTING DRAWING NOS TO BE VERIFIED AT SITE

LEGEND

AT_HEATER - ANTI CONDENSATION HEATER

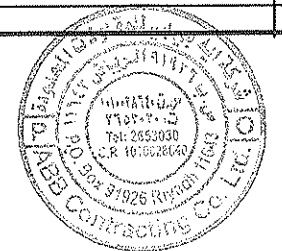
H1 - ANTI CONDENSATION HEATER

OT3, OT4 - AC POWER OUTLET

ACDB - AC DISTRIBUTION BOARD

REFERENCE DRAWINGS

DRAWING TITLE	DRAWING NO.
DRAWING CONTROL SHEET	CD-293969



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REV. NO.	DATE	BY	DESCRIPTION	CHD.	CERT.	APPD.
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0	12/01	MRA	BASE DESIGN	MRA	AS	

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DOC NO. E-123456 REV NO. 00

220VAC AND HEATER

CONNECTIONS INSIDE PANEL

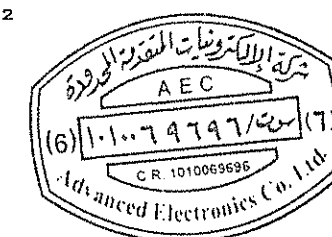
9/8 8162

RIYADH SAUDI ARABIA

JOB ORDER NO.	INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
1131113/00	P	C469	CD-320881	04 OF 17	01

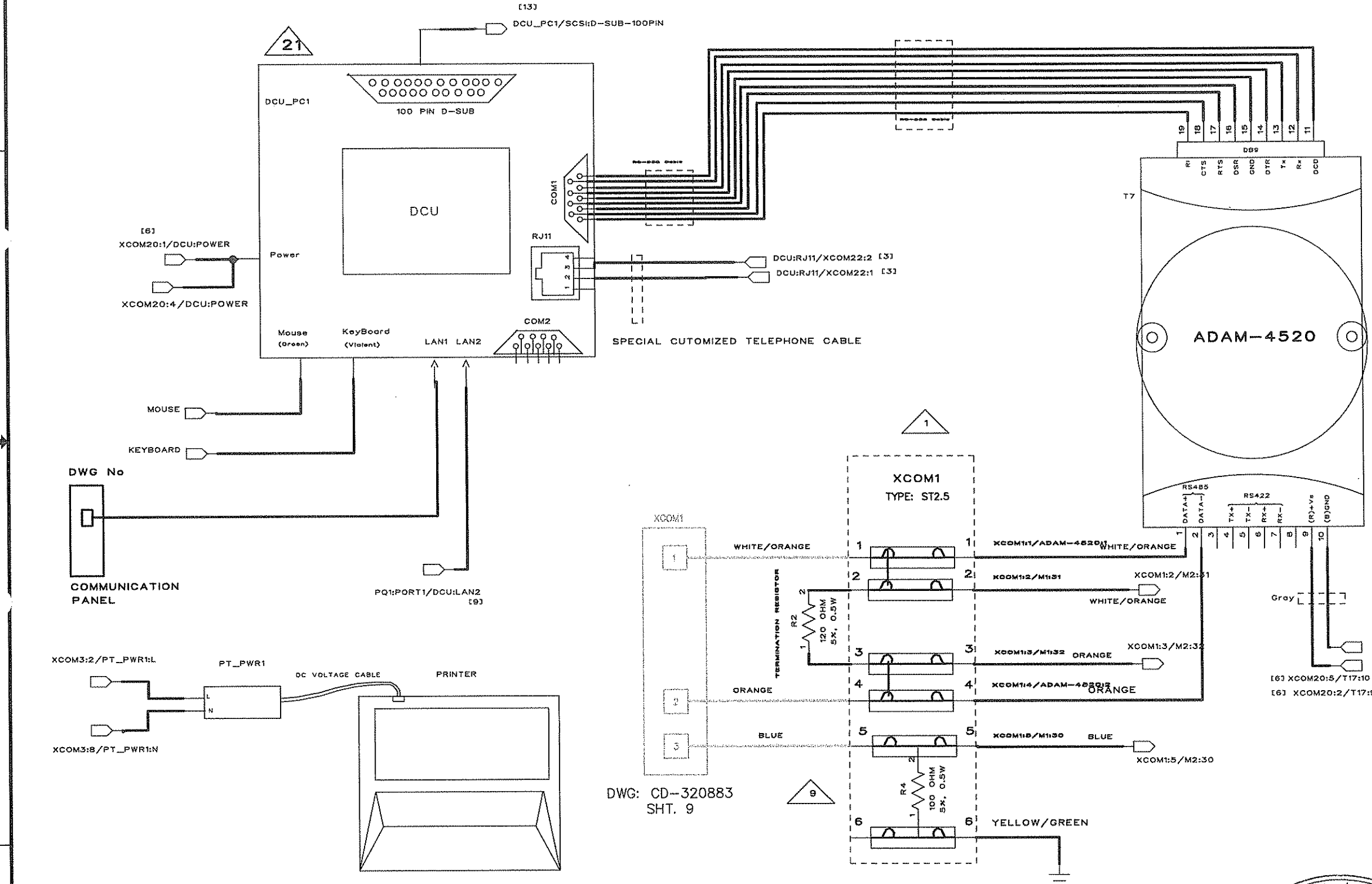
SEC CAD-A 12004/031
[PMB] [VECTON]

MANUFACTURER NAME	AEC
DRAWING NO.	CD-320881
SHEET NO.	04 OF 17
REV. NO.	01



CD-320883	05 OF 17	01
CD-320883	05 OF 17	01
CD-320883	05 OF 17	01

COMMUNICATION INTERCONNECTION



NOTES

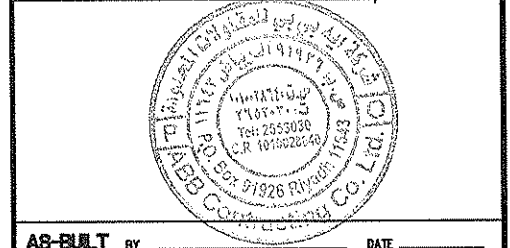
1. EXISTING PANEL NOS AND EXISTING DRAWING NOS TO BE VERIFIED AT SITE

LEGEND

DCU - DATA COLLECTION UNIT
 COM - SERIAL PORT
 ADAM-4520 - RS232 TO RS485 CONVERTER
 PT-PWR - POWER FOR PRINTER
 D-SUB - DIGITAL I/O BOARD CABLE
 RS-485 - COMMUNICATION CABLE

REFERENCE DRAWINGS

DRAWING TITLE	DRAWING NO.
DRAWING CONTROL SHEET	CD-293969



AS-BUILT BY: _____ DATE: _____

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0	12/01	MRA	BASE DESIGN	MRA	AS	

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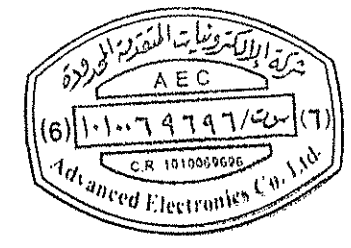
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DCU PC COMMUNICATION CONNECTIONS INSIDE PANEL
 S/S 8182

RIYADH	SAUDI ARABIA
JOB ORDER NO. 11131113/00	INDEX P
PLANT NO. C469	DRAWING NUMBER CD-320883
SHEET NO. 05 OF 17	REV. NO. 01

MANUFACTURER NAME	AEC
DRAWING NO. CD-320883	SHEET NO. 05 OF 17
REV. NO. 01	



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NOTES

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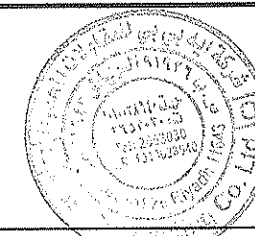
LEGEND

FQ - FIELD CONTACT CONTROLS FOR SWITCHING BETWEEN BUSBAR

TL - TELEPHONE JACK

REFERENCE DRAWINGS

DRAWING TITLE	DRAWING NO.
DRAWING CONTROL SHEET	CD-293969



AS-BUILT BY _____ DATE _____

REV. NO.	DATE	BY	DESCRIPTION	CHKD.	CERT.	APPD.
1	13/07	MRA	DETAIL DESIGN	MRA	AS	
0	12/01	MRA	BASE DESIGN	MRA	AS	

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125 VDC CONNECTIONS INSIDE PANEL

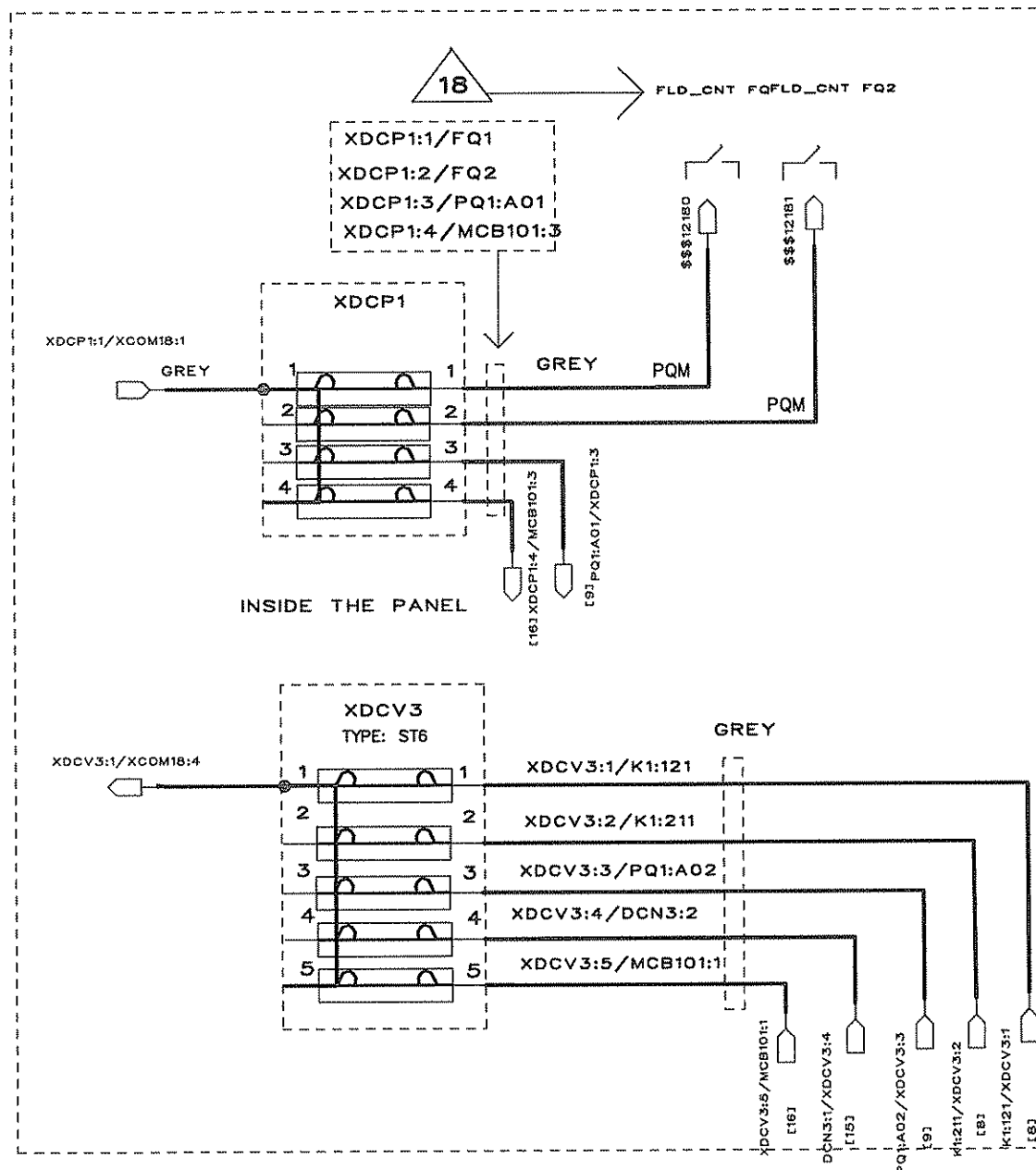
8/8 8162

RIYADH SAUDI ARABIA

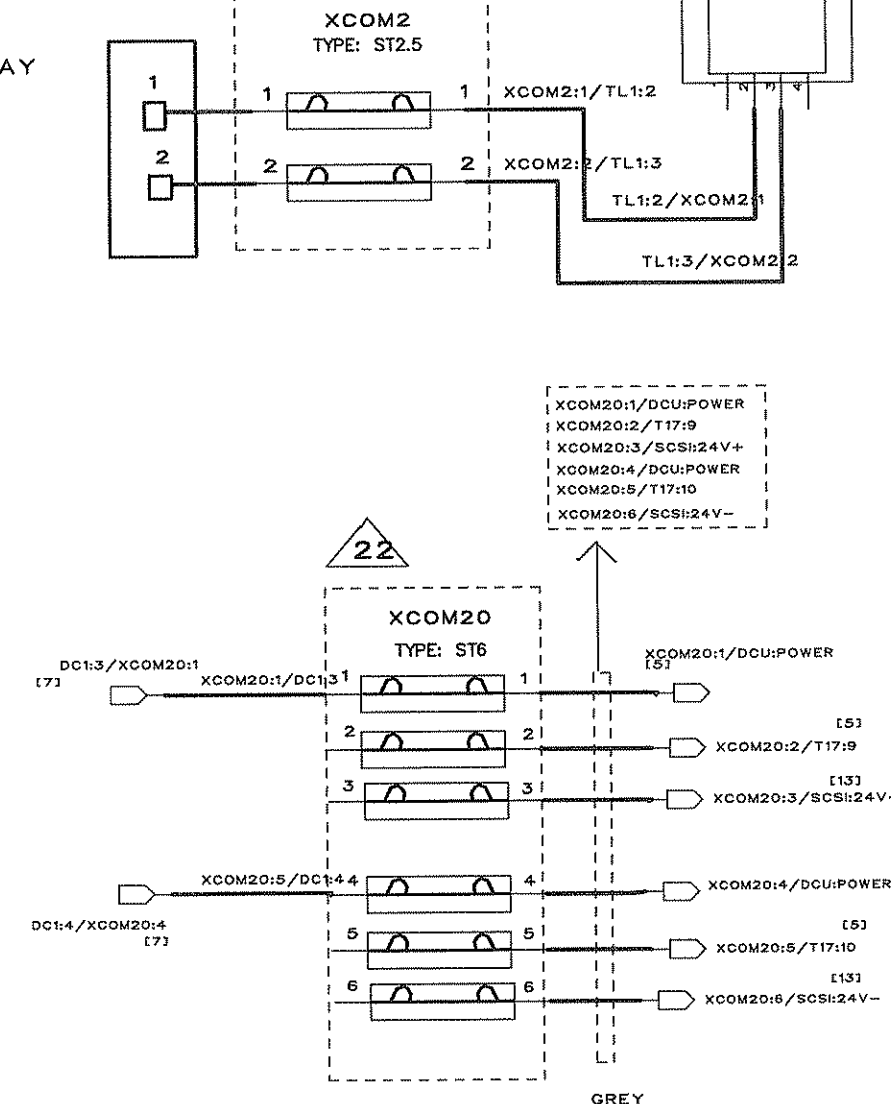
JOB ORDER NO.	INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
11131113/00	P	C469	CD-320881	06 OF 17	01

SEC CAP-A 12004/01
[040] [VECTOR]

DC VOLTAGE FOR RELAY



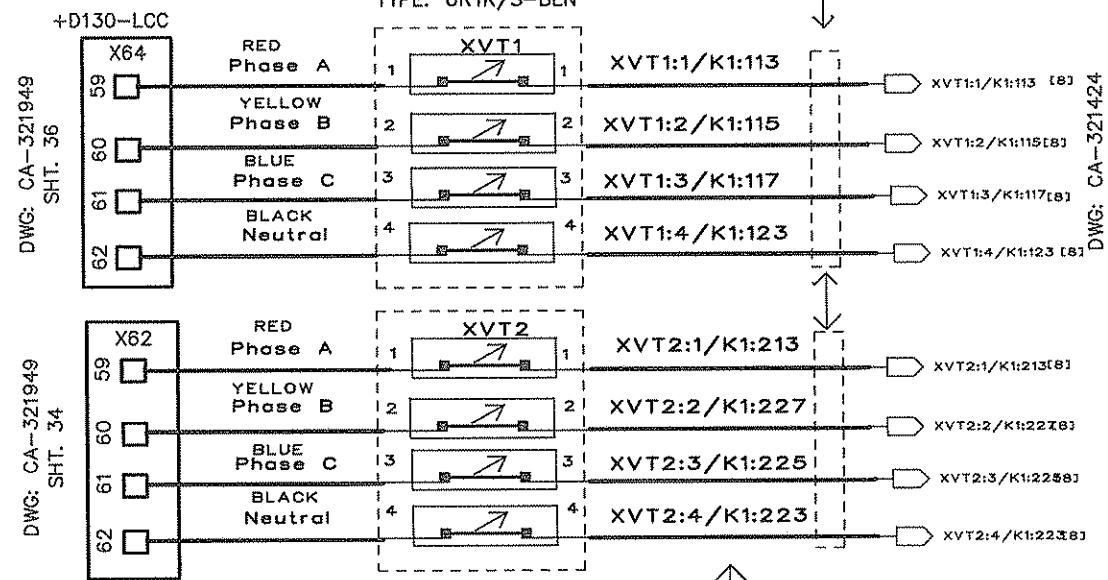
ADJACENT PANEL



FROM VOLTAGE TRANSFORMER

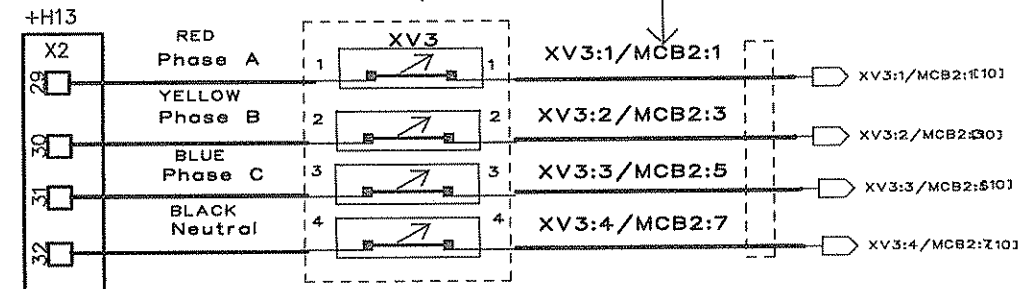
2
VT1A & VT2A FOR PQ METER
2.5mm², RED

FROM SUBSTATION VT



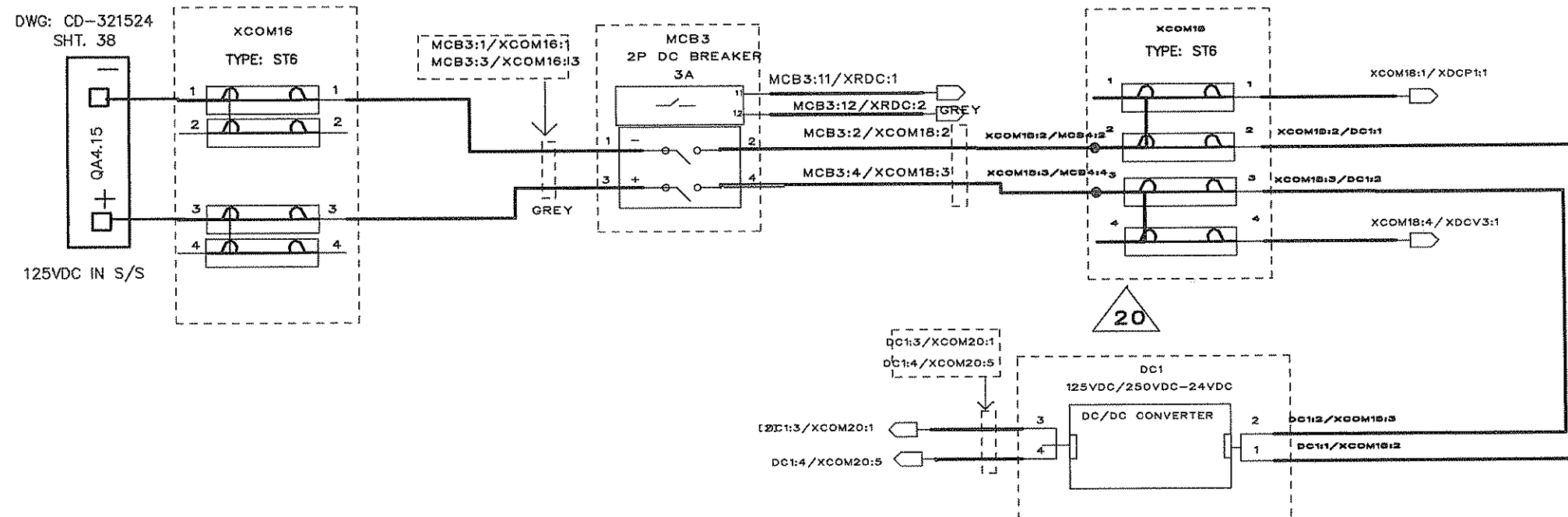
FOR REVENUE METER

FROM SUBSTATION VT



ALL INTERNAL WIRES ON THE SIDE OF TERMINAL BLOCK FARTEST FROM PANEL BACK DOOR
DC VOLTAGE

DC CIRCUIT BREAKER



NOTES

1. EXISTING PANEL NOS AND EXISTING DRAWING
NOS TO BE VERIFIED AT SITE

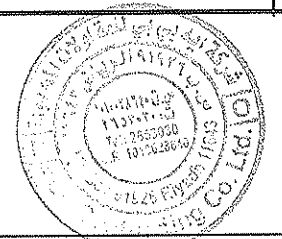
LEGEND

VT1 AND VT2 - VOLTAGE TRANSFORMER
PT- SECONDARY FROM
DOUBLE BUSBAR

VT3 - VOLTAGE TRANSFORMER
PT-SECONDARY

REFERENCE DRAWINGS

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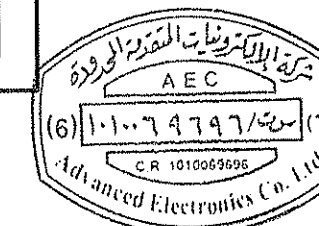
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VT CONNECTIONS INSIDE PANEL

S/S 8162

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO. REV. NO.
1113113/00	P	C469	CD-320881 07 OF 17 01

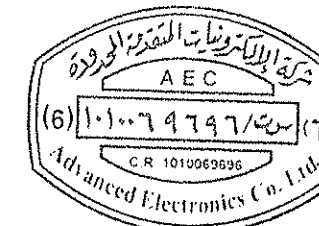


JOB ORDER NO.
1113113/00

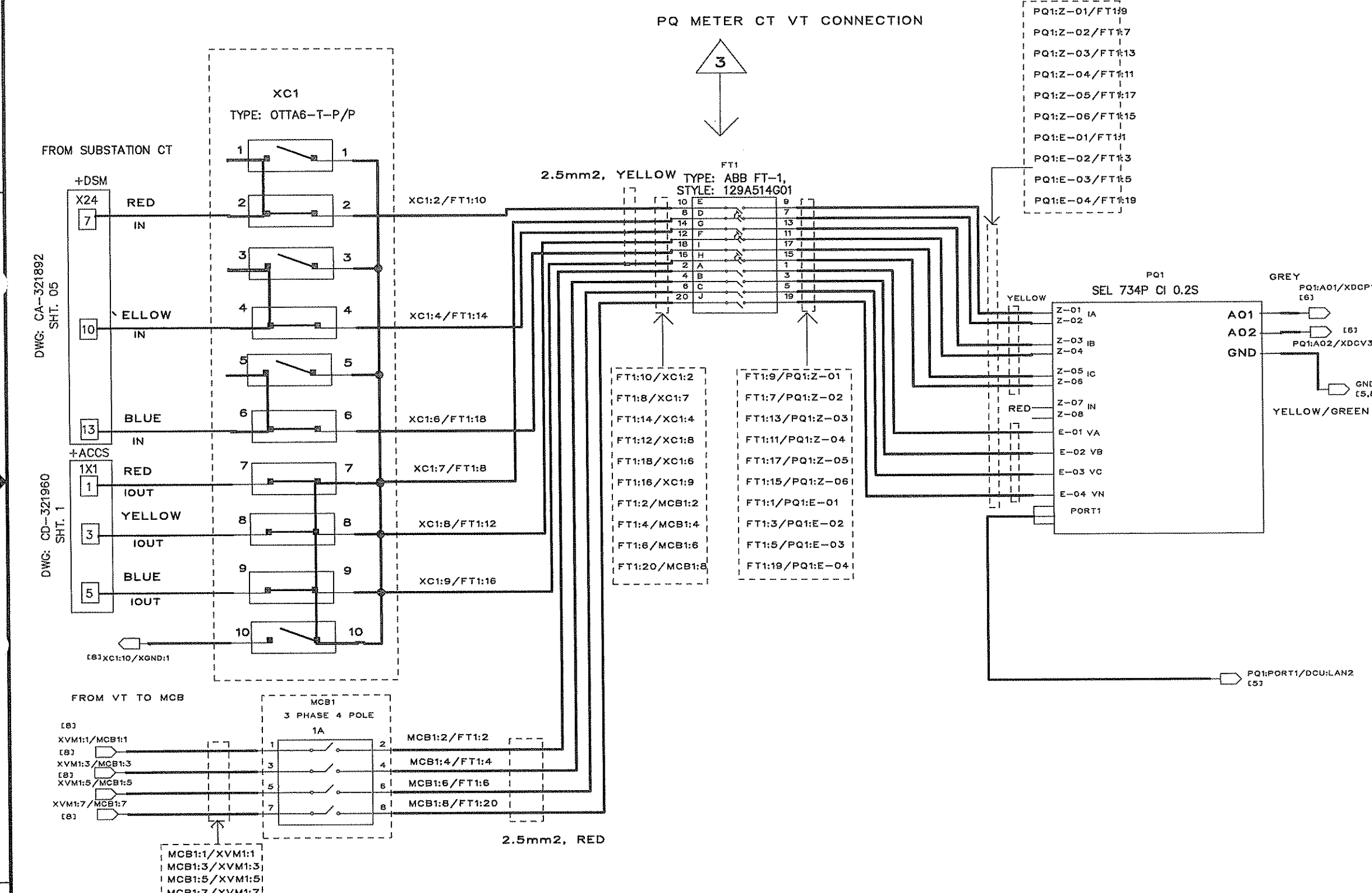
SAUDI ARABIA
Riyadh

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MANUFACTURER NAME		
AEC		
DRAWING NO.	SHEET NO.	REV NO.
CO-320681	08 OF 17	01



JOB ORDER NO.	INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV.
11131113/00	P	C469	CD-320881	08 OF 17	C



NOTES

1. EXISTING PANEL NOS AND EXISTING DRAWING NOS TO BE VERIFIED AT SITE

LEGEND

PQ - POWER QUALITY METER

FT - FLIXITYPE TEST SWITCH

REFERENCE DRAWINGS

DRAWING TITLE	DRAWING NO.
DRAWING CONTROL SHEET	CD-293969

AS-BUILT BY _____ DATE _____

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0	12/01	MRA	BASE DESIGN	MRA	AS	

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PO METER CONNECTIONS INSIDE PANEL

S/S 8162

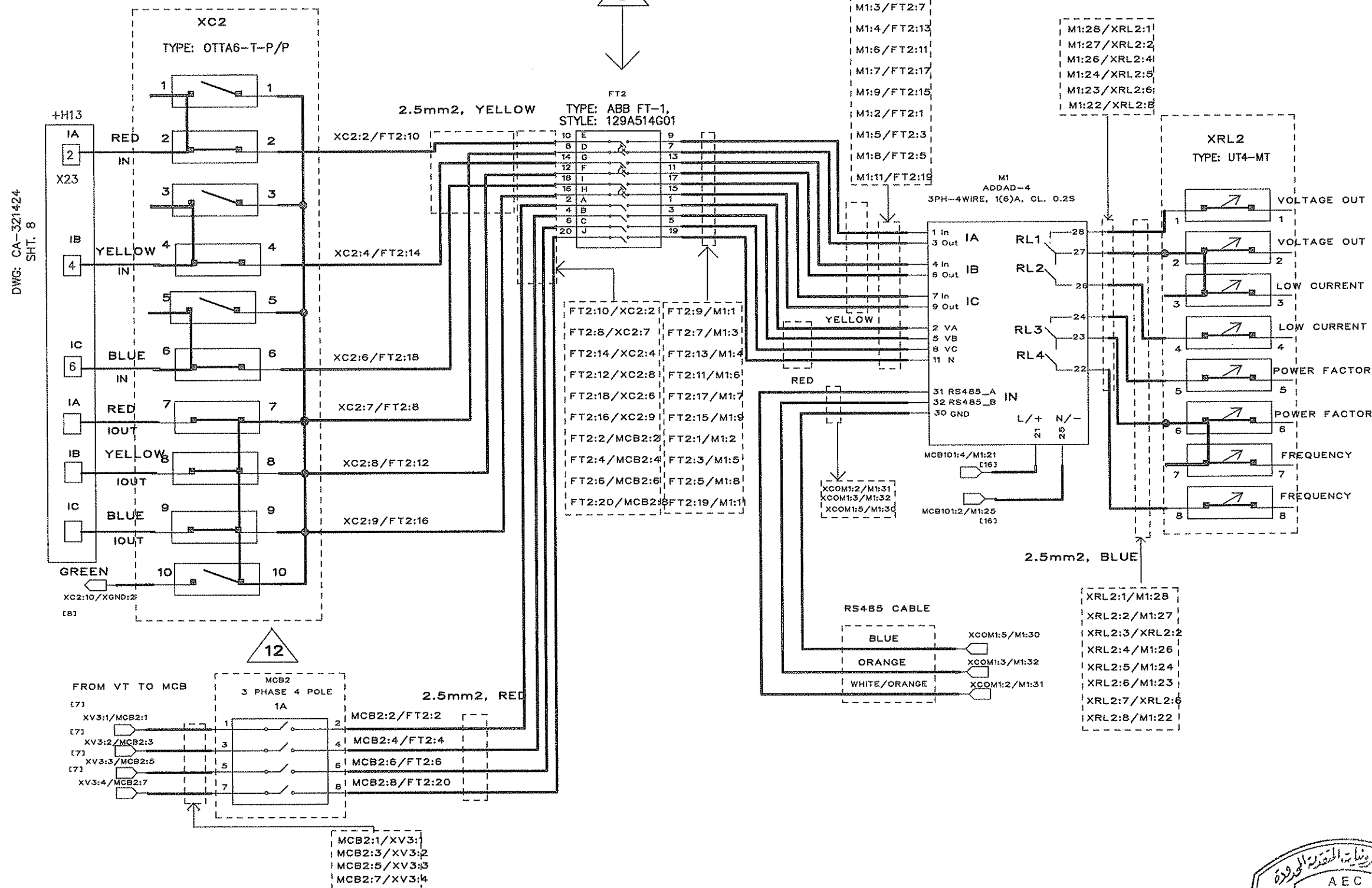
RIYADH SAUDI ARABIA

JOB ORDER NO.	INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
11131113/00	P	C469	CD-320881	09 OF 17	01

SEC 040-A-12004/031

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FROM SUBSTATION CT



NOTES

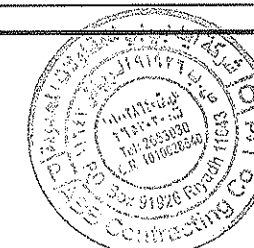
1. EXISTING PANEL NOS AND EXISTING DRAWING
NOS TO BE VERIFIED AT SITE

LEGEND

M1 - DIGITAL REVENUE METER (C1 0.2)
FT - FLIXITYPE TEST SWITCH

REFERENCE DRAWINGS

DRAWING TITLE	DRAWING NO.
DRAWING CONTROL SHEET	CD-293969



AS-BUILT BY _____ DATE _____

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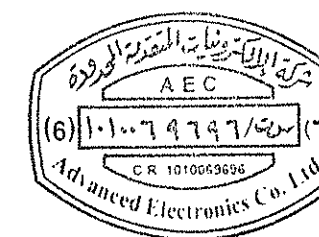
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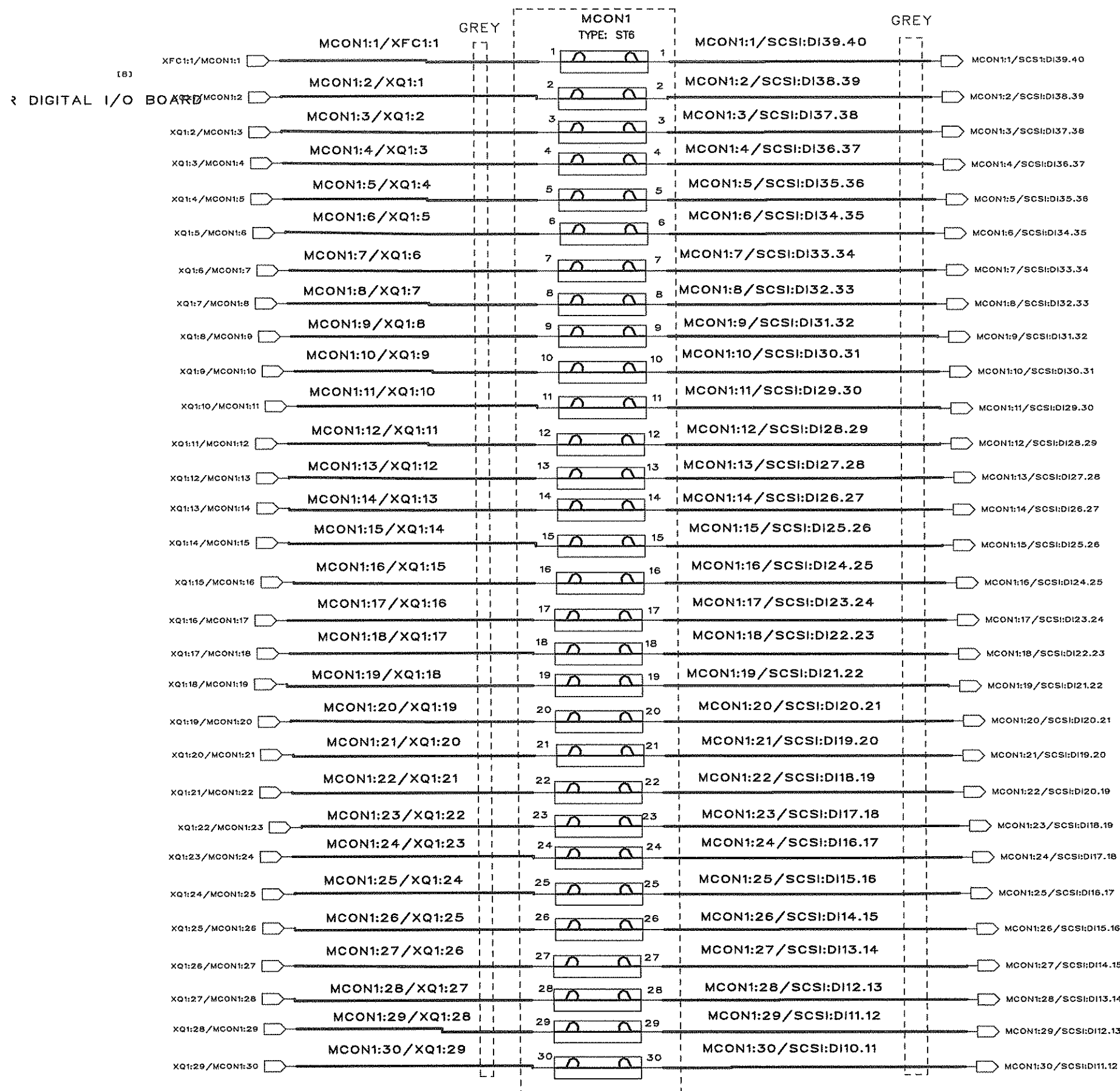
REV METER
CONNECTIONS INSIDE PANEL
S/S 8162

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO. REV. NO.
1113113/00	P	C469	CD-320881 10 OF 17 01



MANUFACTURER NAME	DRAWING NO.	SHEET NO.	REV. NO.
AEC	CD-320881	10 OF 17	01

JOB ORDER NO.	PLANT NO.	DRAWING NUMBER	SHEET NO. REV. NO.
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NOTES

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LEGEND

MCON - CONTROL INPUTS FOR INPUT BOARD

REFERENCE DRAWINGS

DRAWING TITLE	DRAWING NO.
DRAWING CONTROL SHEET	CD-293969

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0	12/01	MRA	BASE DESIGN	MRA	AS	

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APPROVAL/CERTIFICATION INFORMATION
DOC NO. E-123456 REV NO. 00

INPUTS TO DIGITAL I/O BOARD

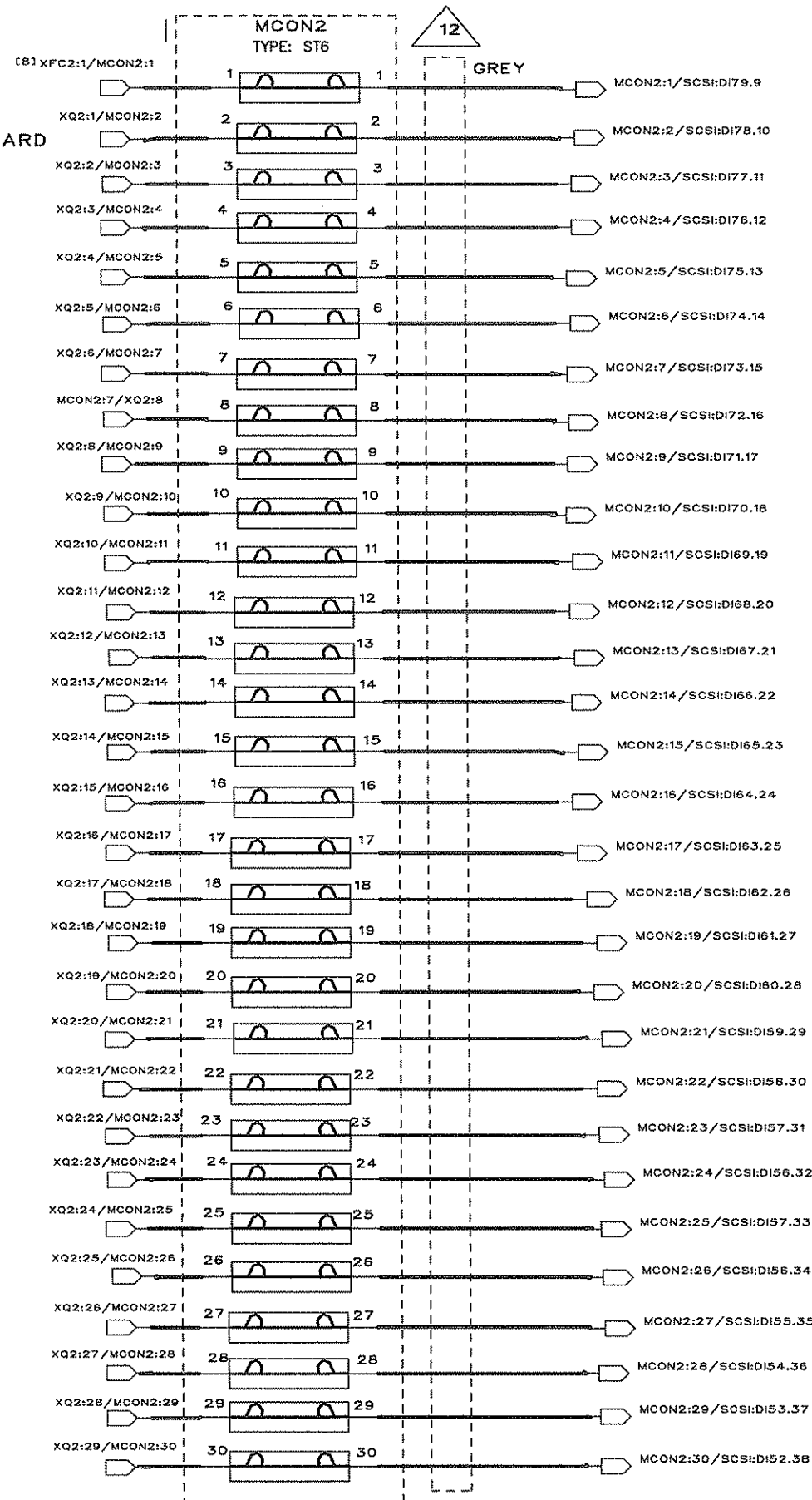
S/S 8162

RIYADH SAUDI ARABIA

JOB ORDER NO.	INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
1131113/00	P	C469	CD-320881	11 OF 17	01

SED CAD-A 12004/031
[EWS] [SECTION]

R DIGITAL I/O BOARD



NOTES

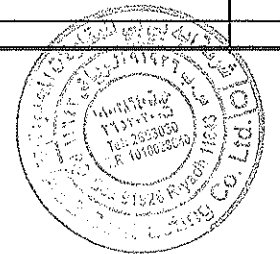
1. EXISTING PANEL NOS AND EXISTING DRAWING
NOS TO BE VERIFIED AT SITE

LEGEND

MCON -- CONTROL INPUTS FOR INPUT
BOARD

REFERENCE DRAWINGS

DRAWING TITLE	DRAWING NO.
DRAWING CONTROL SHEET	CD-293969



AS-BUILT BY _____ DATE _____

REV. NO.	DATE	BY	DESCRIPTION	CHKD.	CERT.	APPD.
1	13/07	MRA	DETAIL DESIGN	MRA	AS	
0	12/01	MRA	BASE DESIGN	MRA	AS	

الشركة السعودية للكهرباء
Saudi Electricity Company

DRAWN BY: MRA CHECKED BY: AS SCALE: NONE
DATE STARTED: _____ DATE COMPLETED: _____
OPRG. DEPT.: _____ ENGS. DEPT.: _____

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MATERIAL UNTIL CERTIFIED AND DATED

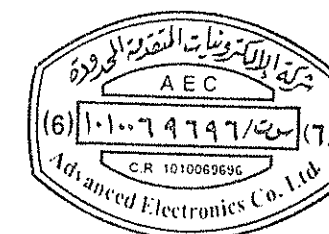
APPROVAL/CERTIFICATION INFORMATION
DOC NO. E-123456 REV. NO. 00

INPUTS TO DIGITAL I/O BOARD

S/S 6162

RIYADH SAUDI ARABIA

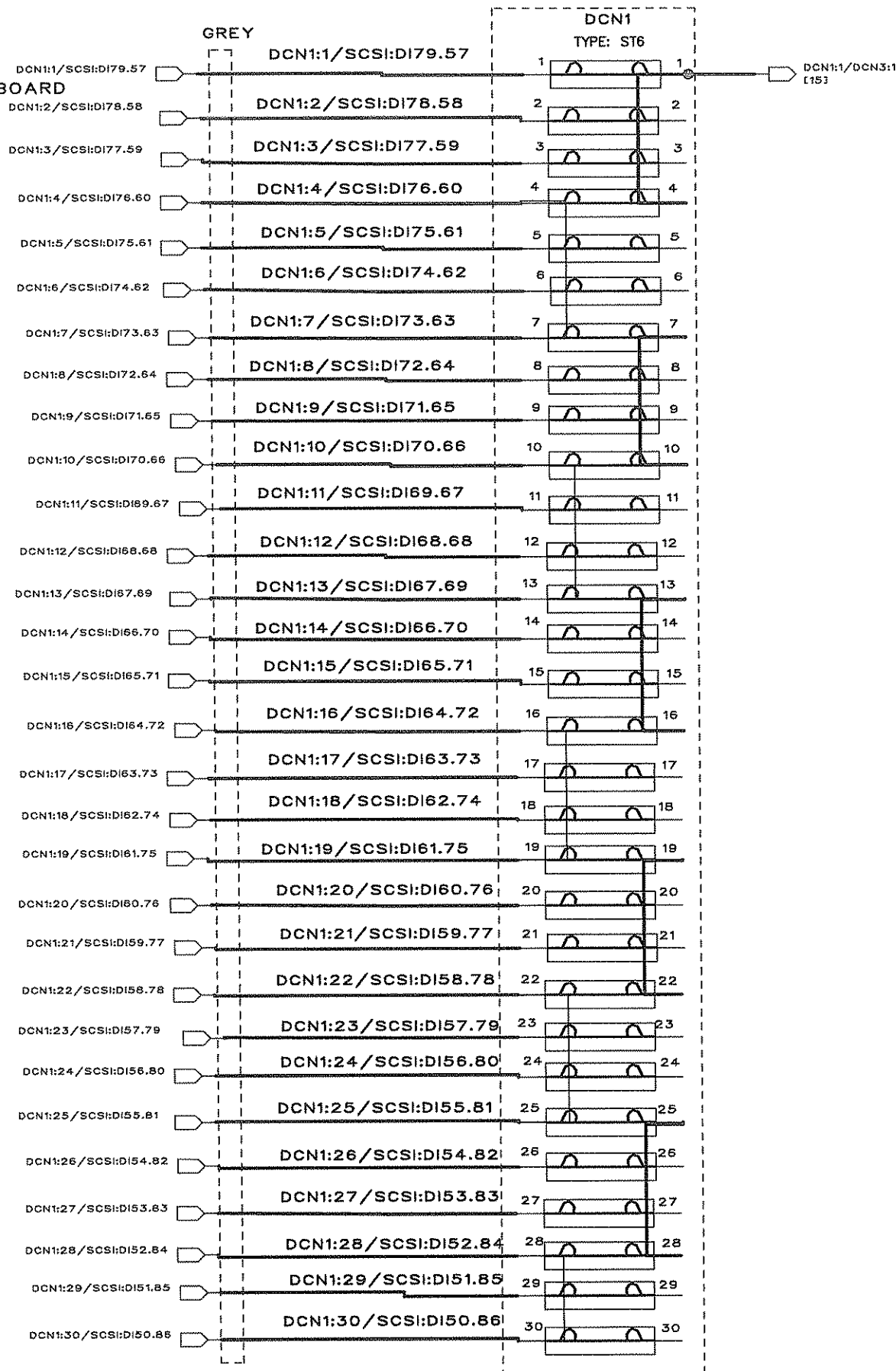
JOB ORDER NO.	INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
11131113/00	P	C469	CD-320881	12 OF 17	01



[illegible]

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NEGATIVE OF DIGITAL I/O BOARD



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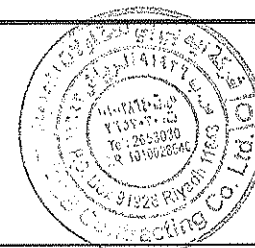
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LEGEND

DCN - NEGATIVE OF DC VOLTAGE

REFERENCE DRAWINGS

DRAWING TITLE	DRAWING NO.
DRAWING CONTROL SHEET	CD-293969



AS-BUILT BY _____ DATE _____

REV. NO.	DATE	BY	DESCRIPTION	CHKD.	CERT.	APPD.
1	13/07	MRA	DETAIL DESIGN	MRA	AS	
0	12/01	MRA	BASE DESIGN	MRA	AS	

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Saudi Electricity Company

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DATE STARTED: _____ DATE COMPLETED: _____
DPRG. DEPT.: _____ ENQ. DEPT.: _____

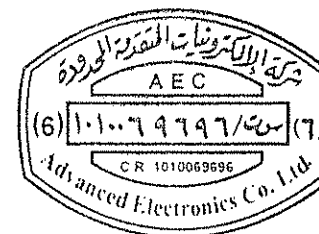
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DOC NO. E-123456 REV. NO. 00

NEGATIVE FORM DIGITAL I/O BOARD

S/S 8162

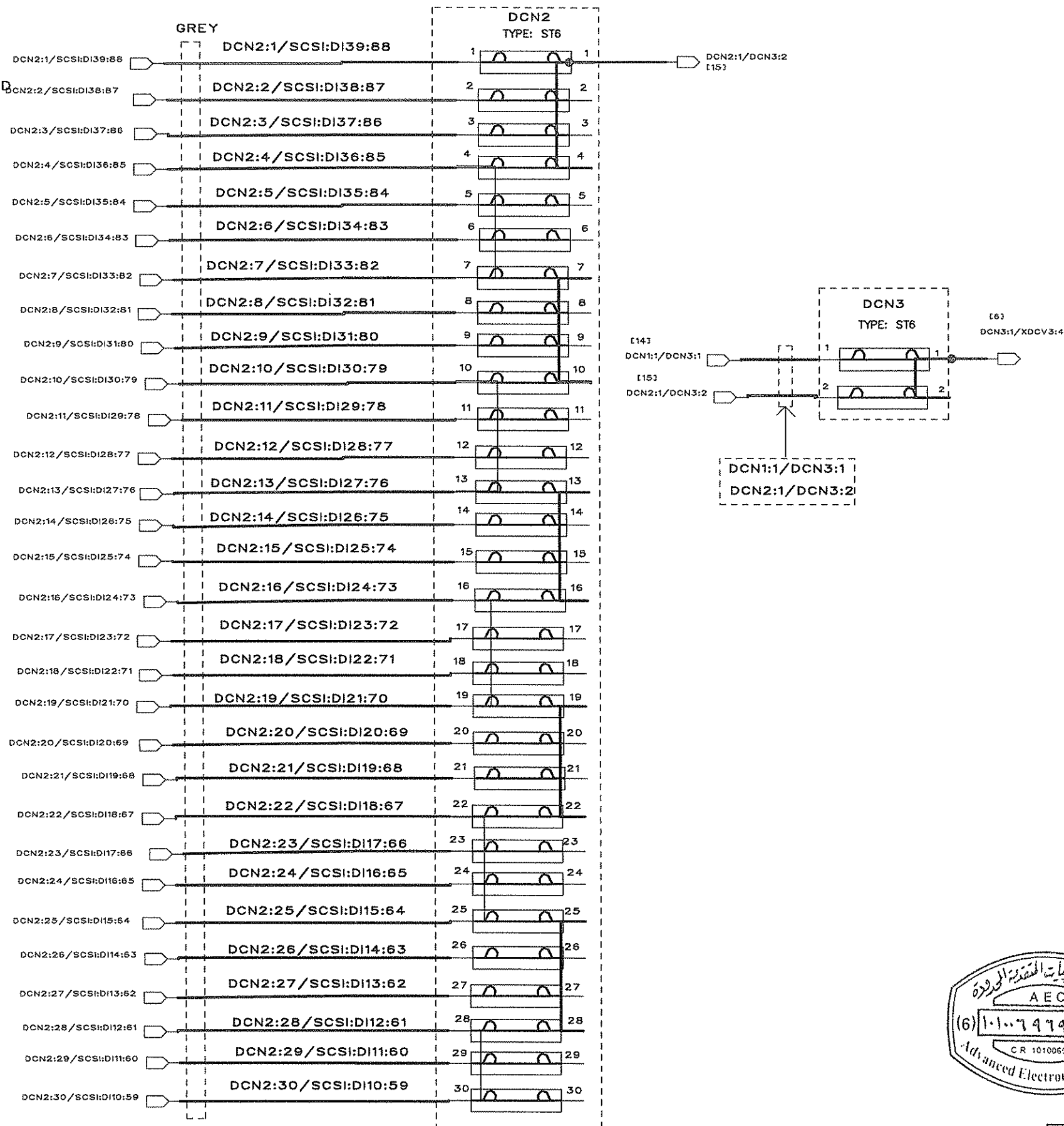
INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO. REV. NO.
P	C469	CD-320881	14 OF 17 01

JOB ORDER NO.
1113113/00



MANUFACTURER NAME		
AEC		
DRAWING NO.	SHEET NO.	REV NO.
CD-320881	14 OF 17	01

NEGATIVE OF DIGITAL I/O BOARD



NOTES

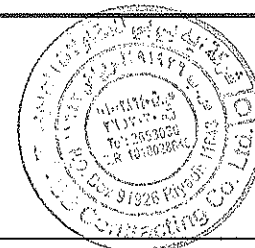
1. EXISTING PANEL NOS AND EXISTING DRAWING NOS TO BE VERIFIED AT SITE

LEGEND

DCN - NEGATIVE OF DC VOLTAGE

REFERENCE DRAWINGS

DRAWING TITLE	DRAWING NO.
DRAWING CONTROL SHEET	CD-293969



AS-BUILT BY _____ DATE _____

REV. NO.	DATE	BY	DESCRIPTION	CHKD.	CERT.	APPD.
1	13/07	MRA	DETAIL DESIGN	MRA	AS	
0	12/01	MRA	BASE DESIGN	MRA	AS	

الشركة السعودية للكهرباء
Saudi Electricity Company

DRAWN BY MRA CHECKED BY AS SCALE: NONE
DATE STARTED _____ DATE COMPLETED _____
OPR'D. DEPT. _____ ENG. DEPT. _____

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APPROVAL/CERTIFICATION INFORMATION
DOC NO. E-123456 REV. NO. 00

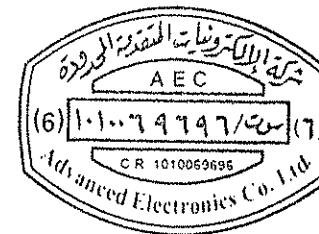
NEGATIVE FORM DIGITAL I/O BOARD

S/S 8162

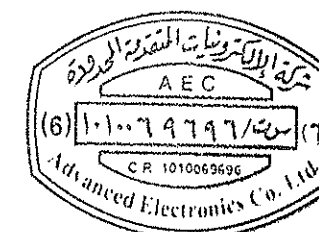
RIYADH SAUDI ARABIA

JOB ORDER NO.	INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
1113113/00	P	C469	CD-320881	15 OF 17	01

MANUFACTURER NAME	DRAWING NO.	SHEET NO.	REV. NO.
AEC	CD-320881	15 OF 17	01



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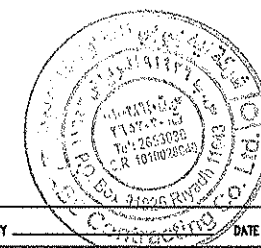
1. EXISTING PANEL NOS AND EXISTING DRAWING
NOS TO BE VERIFIED AT SITE

L1 - LAMP

XRDC - O/P OF AUXILIARY CONTACT
MONITORING DC MCB VOLTAGE

REFERENCE DRAWINGS

DRAWING TITLE	DRAWING NO.
DRAWING CONTROL SHEET	CD-293969

AS-BUILT BY COMPASS ENGINEERING DATE 11/11/2013

1	13/07	MRA	DETAIL DESIGN		MRA	AS			
0	12/01	MRA	BASE DESIGN		MRA	AS			
REV.	DATE	BY	DESCRIPTION		CHKD.	CERT.	APP.		

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Saudi Electricity Company

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DATE STARTED _____ DATE COMPLETED _____
OPR'G. DEPT. _____ ENG. DEPT. _____

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DC AUX. VOLTAGE FOR REV. METER

S/S 8182

RIYADH	SAUDI ARABIA
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JOB ORDER NO.	INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO. REV.
11131113/00	P	C469	CD-320881	16 OF 17

15

MCON2:1/SCSI:DI79.9
MCON2:2/SCSI:DI78.10
MCON2:3/SCSI:DI77.11
MCON2:4/SCSI:DI76.12
MCON2:5/SCSI:DI75.13
MCON2:6/SCSI:DI74.14
MCON2:7/SCSI:DI73.15
MCON2:8/SCSI:DI72.16
MCON2:9/SCSI:DI71.17
MCON2:10/SCSI:DI70.18
MCON2:11/SCSI:DI69.19
MCON2:12/SCSI:DI68.20
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MCON2:16/SCSI:DI64.24
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MCON2:19/SCSI:DI61.27
MCON2:20/SCSI:DI60.28
MCON2:21/SCSI:DI59.29
MCON2:22/SCSI:DI58.30
MCON2:23/SCSI:DI57.31
MCON2:24/SCSI:DI56.32
MCON2:25/SCSI:DI55.33
MCON2:26/SCSI:DI54.34
MCON2:27/SCSI:DI53.35
MCON2:28/SCSI:DI52.36
MCON2:29/SCSI:DI51.37
MCON2:30/SCSI:DI50.38

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SCSI:DI79.57/DCN1:1
SCSI:DI78.10/MCON2:2
SCSI:DI78.58/DCN1:2
SCSI:DI77.11/MCON2:3
SCSI:D77.59/DCN1:3

SCSI:DI76.12/MCON2:4
SCSI:DI76.60/DCN1:4
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SCSI:D71.65/DCN1:9

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SCSI:DI50.86/DCN1:30
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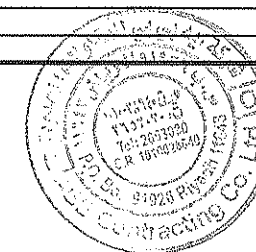
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NOTES

1. EXISTING PANEL NOS AND EXISTING DRAWING
NOS TO BE VERIFIED AT SITE

LEGEND

REFERENCE DRAWINGS

[illegible]

AS-BUILT BY _____ DATE _____

1	13/07	MRA	DETAIL DESIGN	MRA	AS
0	12/01	MRA	BASE DESIGN	MRA	AS
REV. NO.	DATE	BY	DESCRIPTION	CHKD.	CERT. APPR.

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DPR'S DEPT. _____ ENG. DEPT. _____

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CONNECTION TABLES FOR THE DIGITAL

I/O BOARD

S/S 8182

RIYADH	SAUDI ARABIA
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JOB ORDER NO.	INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV.
11131113/00	P	C469	CD-320881	17 OF 17	0

NO.

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